



# California Regional Water Quality Control Board

## Central Valley Region



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### REVIEW OF ANNUAL MONITORING REPORT – WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION

The Central Valley Regional Water Quality Control Board (Water Board) has received the Annual Monitoring Report (Annual Report) from the Westside San Joaquin River Watershed Coalition (Coalition). The Annual report was dated 1 April 2005, and the report was received on the same date, although it was not date-stamped until 4 April 2005. This report was submitted to meet the conditions of Resolution R5-2003-0105, and the associated Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands adopted by the Water Board on 11 July 2003.

Water Board staff met with representatives from the Coalition on 16 August 2005 to discuss the Annual Report and provided preliminary comment at that time. In addition, Water Board staff has continued a review of the Annual Report to evaluate the document for the required reporting elements detailed in Resolution R5-2003-0105, to evaluate the document for the technical and reporting requirements set forth in the Coalition's Monitoring and Reporting Program Plan (MRP Plan), and to assess the quality of the data generated and the conclusions and recommendations presented in the report. The review has been separated into three major categories: 1) a discussion of administrative aspects, 2) a discussion of analytical aspects, and 3) a discussion of waiver compliance.

### ADMINISTRATIVE ASPECTS

The Annual Report was dated 1 April 2005, and has been evaluated for the presence and completeness of several key components as described in the Monitoring and Reporting Program Resolution R5-2003-0826 (MRP) including: a description of the watershed, monitoring objectives, sampling site descriptions, a location map including sampling sites, tabulated results from sample analysis, sampling and analytical methods, chain-of-custody forms, quality control sample results including a summary of precision and accuracy, pesticide use information, data interpretation, a summary of management practices used, actions taken to address identified water quality impacts from agricultural discharges, communication reports, conclusions and recommendations. Overall, the required elements were complete and satisfactory. Monitoring locations and sampling frequency were evaluated against the MRP requirements and against the MRP Plan. Communication reports were transmitted in accordance with

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the MRP, and were evaluated. Although the overall completeness and quality of the Annual Report was determined to be satisfactory, the following deficiencies can be noted, and recommendations should be made:

**Item 1:** Section 4 of the Annual Report describes the locations and relative importance of the individual sampling site locations. This section should also provide a description of the sample locations' overall relevance to the watershed areas. The Watershed Evaluation Report (WER) and the MRP Plan contain additional information on the rationale for sample location selection. It should be recommended that in the next Annual Report, a more thorough description of the rationale for sample location selection be included in Section 4, or that this section reference specific portions of the WER and MRP Plan that provide the information.

**Item 2:** In Section 8, the description of the toxicity observed at Salado Creek in July 2004 should be more detailed. A more thorough summation of the Toxicity Identification Evaluation (TIE) should be included to explain the conclusion that the toxicity was caused by a non-polar organic compound. Also, the fact that the site was re-sampled to determine the duration of toxicity was not mentioned in Section 8, but was noted in the Communication Report (found in Appendix E). It should be recommended that in the next Annual Report this section describe observed toxicity and follow-up activities including re-sampling, specific TIE steps (e.g. C8 column), dilution series, determination of toxic units, management practice implementation, etc.

**Item 3:** The Annual Report Tables 3 (Monitored Constituents) and 10 (Testing Laboratories and Methods Used) are similar enough that they could be combined into one table. It should be recommended that the two tables be combined in the next Annual Report.

**Item 4:** Annual Report Table 6 (Pesticide Detection Summary) is of limited use. Table 6 could be eliminated, however, if not eliminated, it could be made useful by expanding or modifying it to show which pesticides were (and were not) detected, the frequency of detection of specific compounds, and whether or not detected concentrations were above water quality objectives. A list, table or graph of the occurrences of results that exceed water quality objectives would help evaluate the quality of water in the Coalition areas. This summary should include the constituents that did exceed established numeric or narrative objectives, and an evaluation of the potential causes of the exceedances.

**Item 5:** A table or summary of all chemical measurements, including pesticides, associated with each incident of significant toxicity is recommended (a "hit" table for samples exhibiting toxicity). In this way, all samples shown to cause significant toxicity to test organisms could be tabulated and immediately compared to all associated water chemistry results.

**Item 6:** A table or brief summary of all 303(d) listed waters within the Coalition area should be included in the Annual Report. This information is included in the WER, however a brief listing in the Annual Report would be helpful.

**Item 7:** It is not clear from the Annual Report what rationale was used to select the sites to be monitored for winter toxicity. Please provide this information or reference the section of the appropriate document which contains this information.

**Item 8:** The next Annual Report should include updated information on the status of the implementation of Management Practices (MPs) and the status of the grants and other funding projects described in Table 14 (MP Development). The Water Board may request further information on these topics prior to submittal on the next Annual Report.

## **ANALYTICAL ASPECTS**

**Item 9:** The Practical Quantitation Limits (PQLs) reported for Azinphos-methyl, Chlorpyrifos, Disulfoton, and Parathion-methyl are higher than the most stringent of the Water Quality Objectives for Freshwater Aquatic Life Protection published by the U.S. Environmental Protection Agency, and/or the California Department of Fish and Game. This issue was previously raised during review of the Coalition's QAPP, and the Coalition responded that the limits provided were the lowest practicable limits that could be achieved by local, accredited labs. Chlorpyrifos is of particular concern, because it is 303(d) listed in several monitored water bodies, and it has frequently been detected in Central Valley waters and associated with water column toxicity. The Water Board considers the PQLs reported in the Annual Report for the above compounds to be adequate for the evaluation of toxicity to aquatic test organisms, and the presence of acute effects from pesticide contamination from agricultural activities (but the limits may not allow evaluation of chronic effects to freshwater aquatic organisms). Non-detected results for these compounds should be reported at Method Detection Limits (MDLs) or PQLs below the Freshwater Aquatic Life Protection criteria. In doing so, data quality would be enhanced and it should be recommended that this change be made. The ability for the Coalition's contracted laboratories to report at these lower limits needs to be explored.

**Item 10:** In the absence of an established sediment TIE procedure, it should be recommended that sediments shown to exhibit toxicity to *Hyalella* be analyzed for the presence of pesticides, such as pyrethroid, organochlorine and organophosphate pesticides. This may require a change in the amount of sediment collected at each sampling location. Detection limits for pesticide constituents in sediment should be low enough to evaluate their relation to observed toxicity (lower than one tenth of the LC50 concentrations for *Hyalella*). The Water Board staff can provide further guidance on laboratory capabilities for pyrethroid analyses, as information becomes available.

**Item 11:** The Coalition performed TIEs based on a criterion of the presence of two or more toxic units in a sample (based on dilution series). The MRP states that any sample exhibiting significant toxicity should undergo a TIE, and the Draft Revised MRP for Coalition Groups requires the trigger of 50% or greater mortality to *Ceriodaphnia* or *Pimphales*, or a 50% or greater reduction in growth to *Selenastrum*, based on a 100% concentration of the original sample. These criteria should be used to initiate TIEs in current and future monitoring events.

**Item 12:** In addition to toxicity and pesticides, all general chemistry parameters that exceed water quality objectives should be tabulated. If general chemistry and physical parameters exceed a numeric or narrative water quality objective, the Water Board relies on the Coalition to acquire and report these data so that an appropriate evaluation of the conditions can be performed. For example, the following parameters exceeded water quality objectives at least once at every Coalition sampling location during the 2004 monitoring effort: electrical conductivity, *E. coli*, and TDS. It is recommended that these data be compared to existing or future data representing upstream or "background" conditions to assist in the evaluation of potential impacts due to agricultural activities.

**Item 13:** The Coalition did not return to collect samples at locations upstream from the locations where toxicity was observed. Water Board staff and the Coalition have discussed the Coalition's proposed alternatives to upstream sampling, based on the potential limitations on the data that upstream sampling may provide for specific creeks in the Coalition area. The Coalition suggests that attempting to pinpoint the source(s) of certain waste discharges may not be an efficient way to identify and mitigate specific problems, whereas a regional approach to MP implementation in areas with identified problems may be more advantageous. This regional approach would entail collaborative efforts of multiple growers in a confined area utilizing similar cropping, irrigation, and pesticide application practices, thereby reducing future problems. This issue will be further evaluated and the resolution documented separately.

## WAIVER COMPLIANCE

In general, the Coalition complied very well with the requirements set forth in the Waiver and the MRP. It should be noted that the Coalition included a bioassessment in the Annual Report, which was encouraged, but not mandatory, in accordance with the MRP.

**Item 14:** There is no indication that Orestimba Creek was re-sampled after toxicity was observed during the July 2004 sampling event, and there is no indication that Del Puerto Creek was re-sampled in August after toxicity was observed during the August 2004 sampling event. The Waiver requires re-sampling of a sampling location when toxicity is observed to attempt to estimate the duration of toxicity in the water column. Please provide an explanation as to why these sites were not re-sampled.

**Item 15:** The Coalition analyzed samples for the following 303(d) listed constituents, where applicable, as required by the MRP: Chlorpyrifos, Diazinon, Azinphos-methyl, electrical conductivity, and toxicity. The following constituents are also 303(d) listed in the noted water bodies, which are monitored by the Coalition. In accordance with the Waiver, these constituents should be added to the Coalition's monitoring efforts: Selenium in Salt Slough, Selenium and Boron in Mud Slough, and DDE in Orestimba Creek.

**Item 16:** All results (including general chemistry results) that exceed water quality objectives should be reported in the form of an Exceedance Report at the time of the occurrence. Although the water quality objectives for some parameters may be routinely exceeded due to background levels or other conditions, the MRP requires that the information be reported in an Exceedance Report so that the results can be interpreted by the Water Board staff in a timely fashion. The Coalition is encouraged to submit additional data that will assist in this assessment process, such as historical data, data from samples collected during periods when tailwater is not being discharged, and analytical data from sample locations upstream from agricultural discharges. Narrative objectives for parameters such as suspended solids and turbidity may require additional data to be collected. Water Board staff will work with the Coalition to determine and document acceptable goals for narrative objectives, so that the reporting requirements will be clear to the Coalition, and will meet Water Board expectations.